

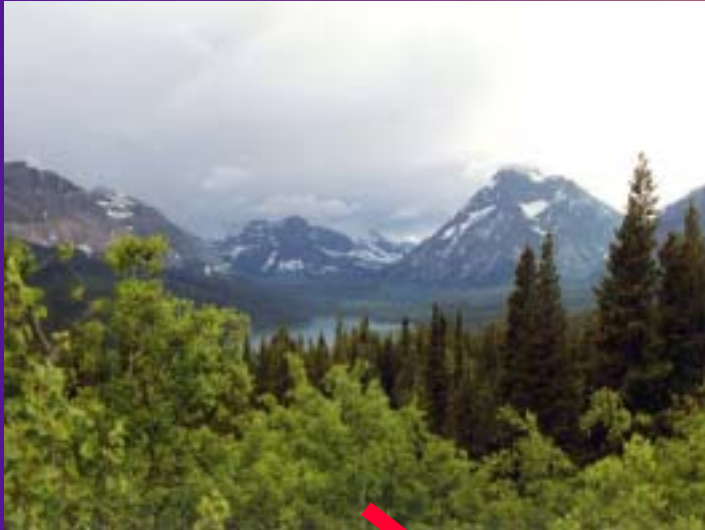
# Protecting Our Most Vulnerable: Using CBPR and Cumulative Risk Assessment To do Right by our Children

**Boston -- 5/2004**

With some theology on the side



# Science in Context -- What is “environment”



# Interdisciplinary Understanding



# Understanding Children



vs.



vs.



# Children: What's Different?

- Biologically/Developmentally
- Scale -- size and time issues
- Behaviorally/Exposure
- Value --economically and theologically



# The Dance of Development

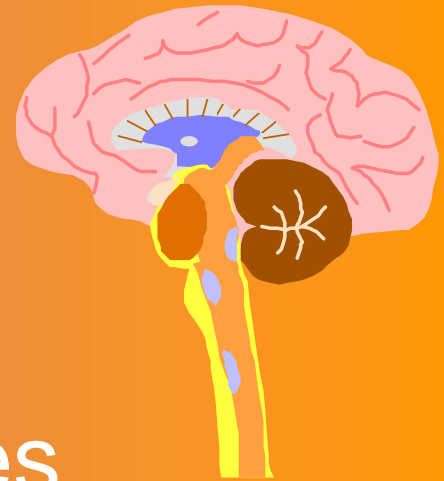


“A little kid goes from a single cell to a laughing, sociable, intelligent, friendly human being over the course of two years. That’s dramatic growth and development.”

Kenneth Olden, Ph.D., Director,  
National Institute of Environmental  
Health Sciences

# Biological Differences

- Neurological wiring and integration
- Immune system differences
- GI -- 50% (vs.. 10%) of lead retained by children
- Endocrine systems -- PCBs
- Respiratory development





# Scale

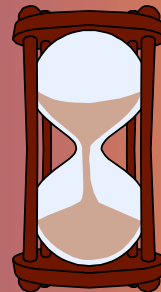
- Food, Drink, Breath



- Location



- Shelf life





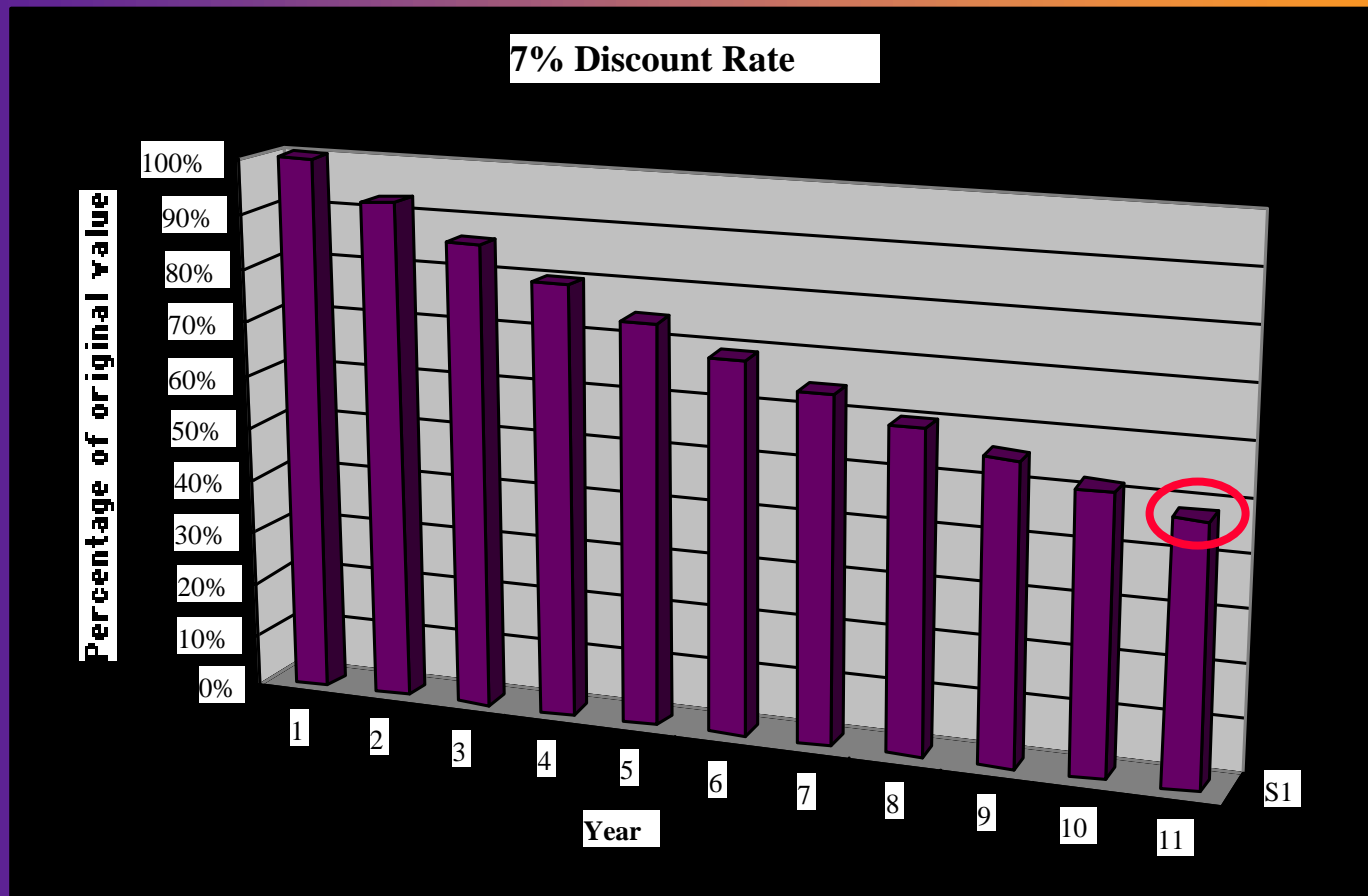
# Behavior/Exposure

- Eating patterns (20x apples)
- Hand/mouth behaviors (“under 3”)
- Dermal Exposures (floor time)
- Active, outdoors



# Economics

- Consumption/Wages
- Distribution/ “Tail effects”
- Discount Rates



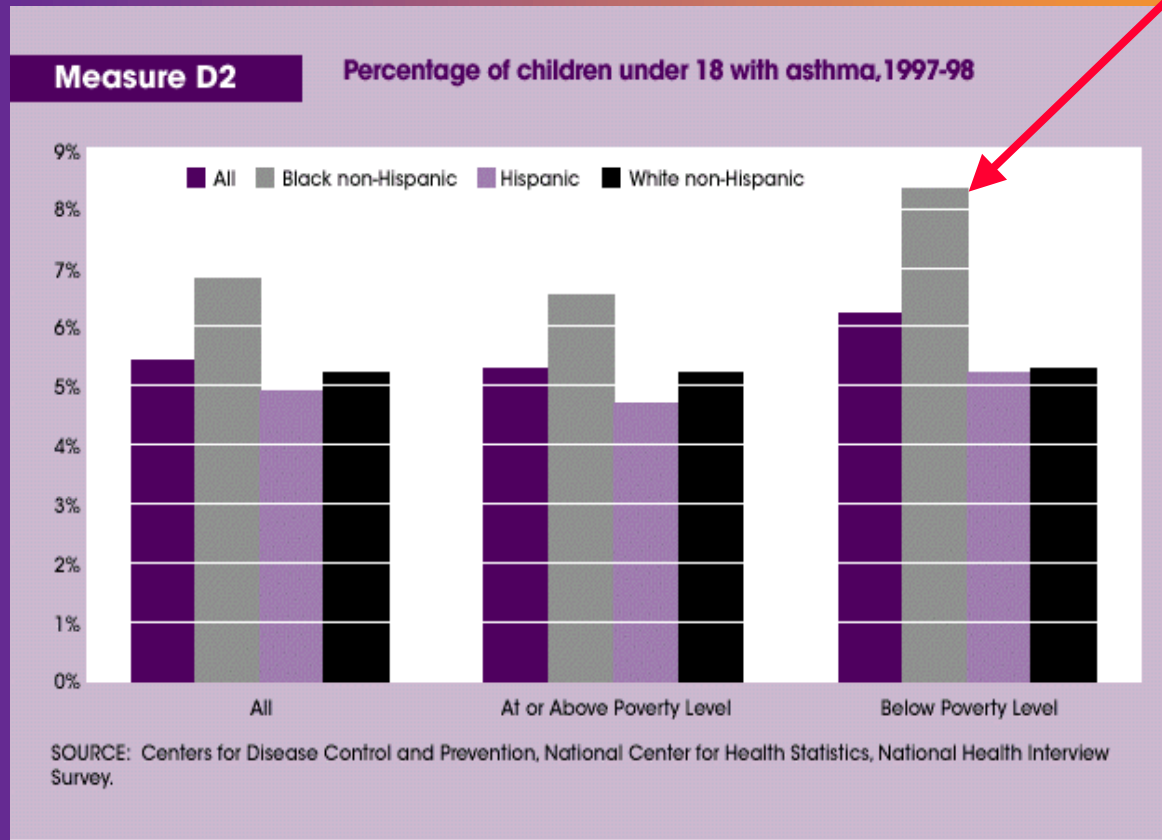
# The Value of Children

“The Holy One said, present to me good guarantors that you will keep my teachings and then I shall give them to you. They said ‘our ancestors.’ But God said, they are not sufficient. ‘Our prophets.’ But God said, they are not sufficient. ‘Our children.’ And God said, they are certainly good guarantors. For their sake, I give you my teachings.”

-- Midrash Song of Songs

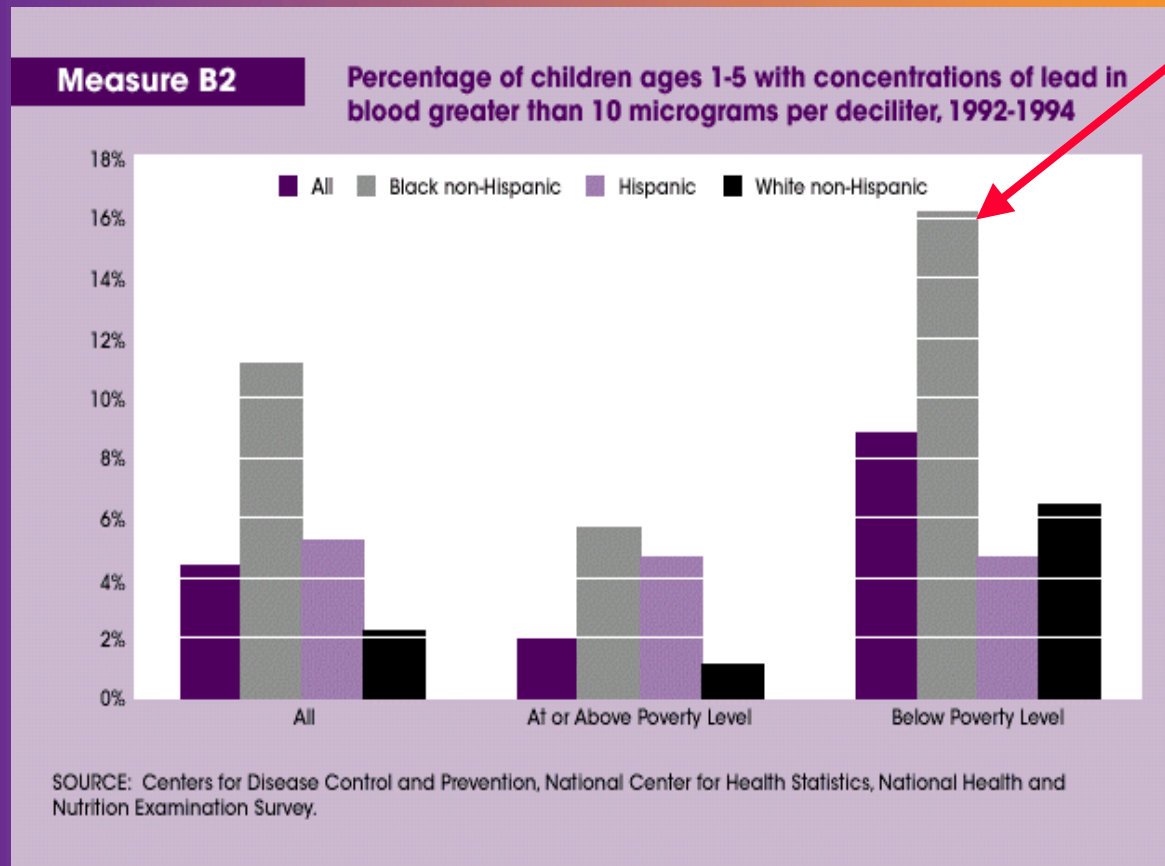


# Which Children? - Asthma



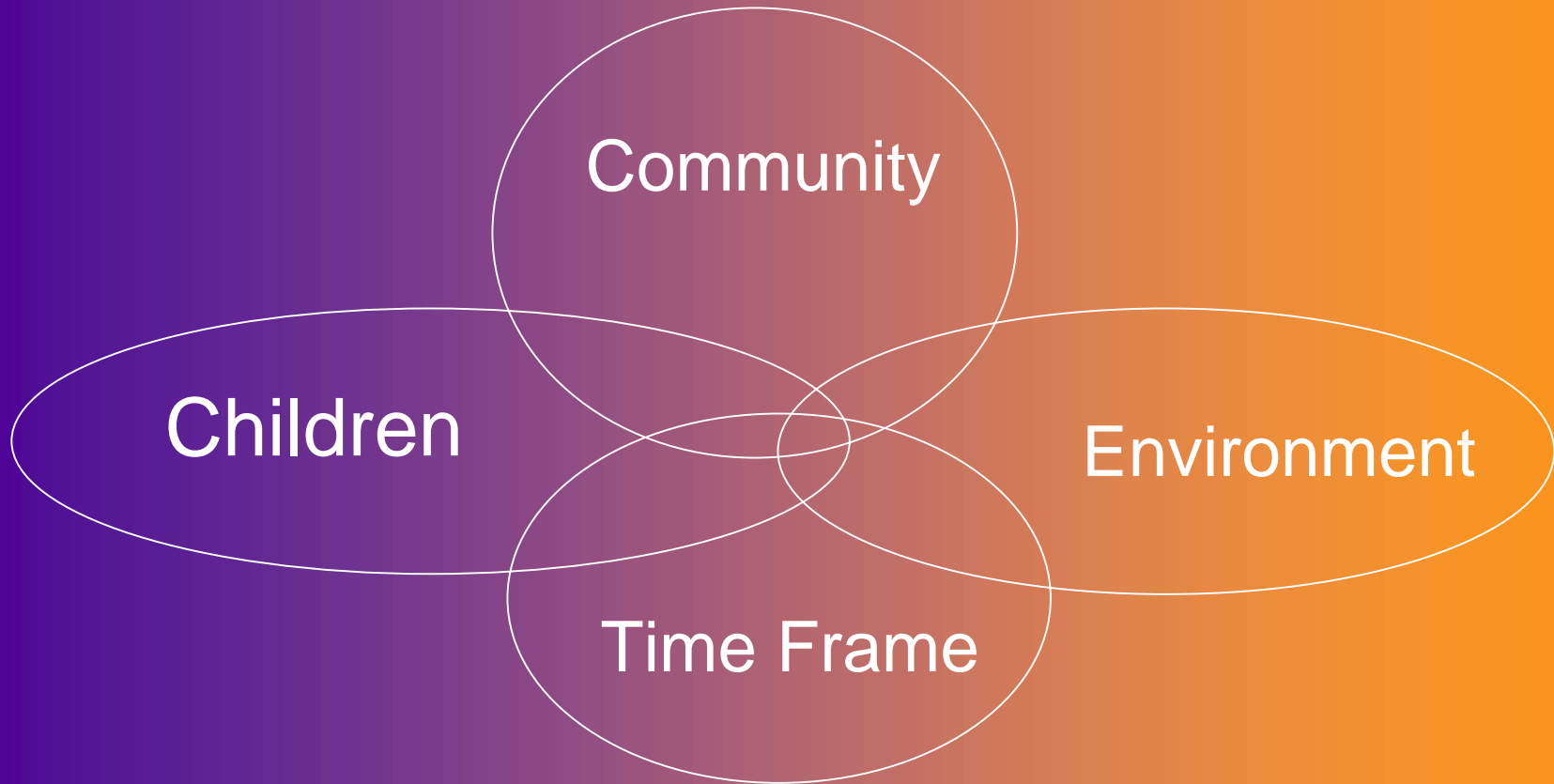
- ✓ Costs of asthma to the U.S. economy - \$11 billion in 1997
- ✓ Student lost school days – about 10 million (1997 estimate)
- ✓ Parent lost work days – about 5 million (1997 estimate)

# Why Cumulative and CBR? - Lead



- ✓ Reduced cognitive ability, as measured by IQ scores and valued in terms of forgone earnings, is estimated to be about \$9,600 per IQ point lost
- ✓ The cost of not eliminating lead exposure to children over the next ten years is expected to be about \$22 billion in forgone earnings

# Research Challenges, Part I



Unit of study, privacy, data  
ownership

# Challenges, Part II

- Differences with “medical” model -IRB
- Developing criteria for random/intervention
- Failure of “community standard”
- Who’s at risk vs. who’s studied
- Distinctions w/intentional dosing
- “conflict of interest” conflated -- \$\$





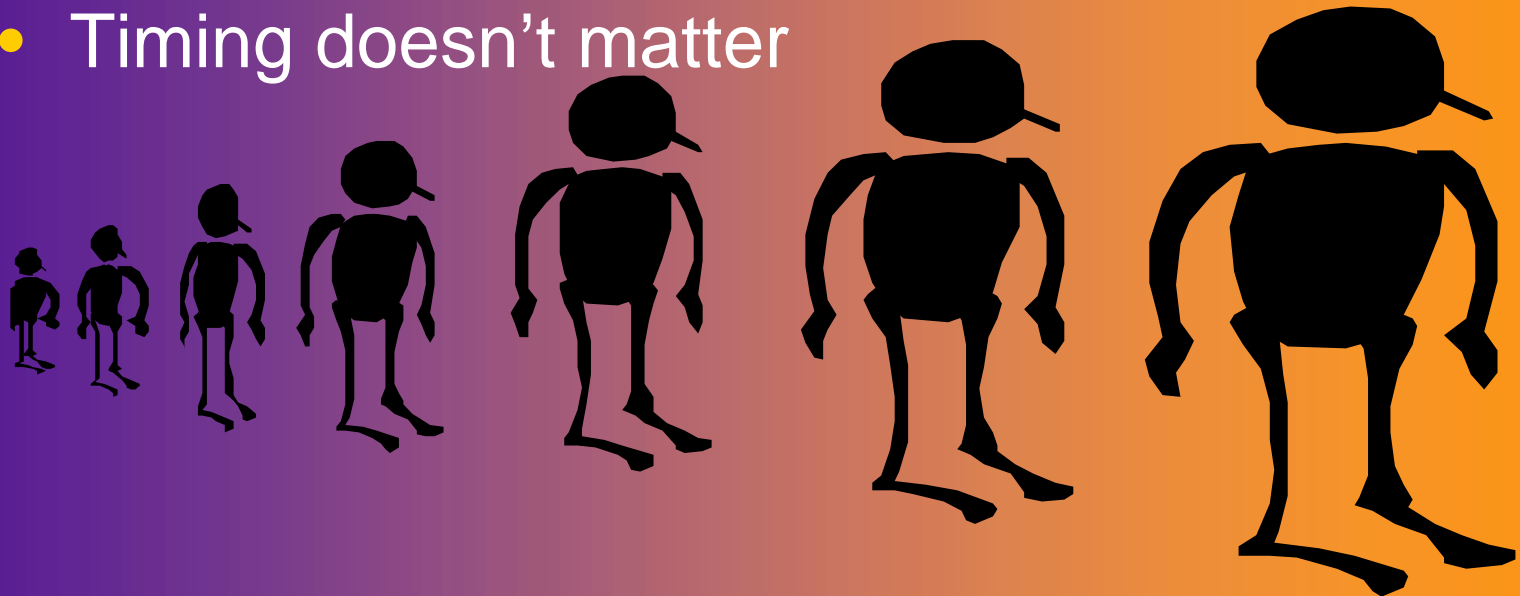
# Barriers to Translation

- Political Will
- Expertise in the right places
- Interagency cooperation
- Sufficient value placed on children, sufficient resources for tasks



# Regulatory (Old) World View

- “Dose makes the poison”
- Dose/response simple
- One pathway/chemical, One chemical/time
- Children, adults qualitatively the same- DNT
- Bell curves/ protect the “average”
- Timing doesn't matter



# Who's in charge

- Env/health depts: Health Tracking
- Schools
- Indoor Air
- Environmental Tobacco Smoke
- And who's *really* in charge



# Standards of Evidence and Precaution

## The Parapet Principle



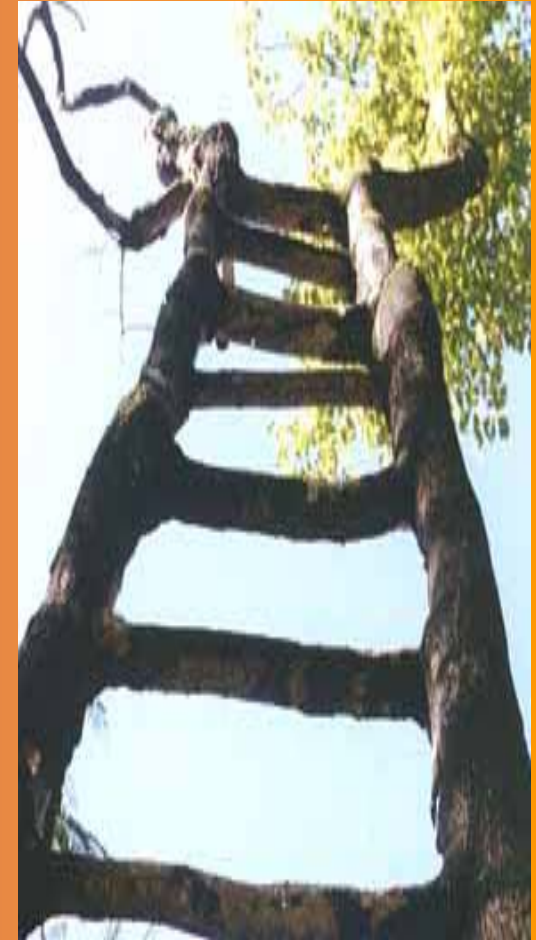
# Start Worrying Now - Details to Follow

- Impacts/challenge of climate change
  - heat/long-term global cooperation
- Nanotechnology
- Health impacts of sprawl



# Steps to Better Policy

- Right to know:
  - What's in it?
- Health-based standards
  - How safe is it?
  - Whole child vs. “silos”
- Sensitive sub-populations:
  - Safe to whom vs. average
- Prevention:
  - Burden of proof/FQPA
- Design it in
  - On beyond regulation



# Messianic Thinking?

R. Yochanan Ben Zakkai:

"If you are planting a tree  
and you hear that the  
Messiah has come,  
finish planting the tree,  
then go and inquire."



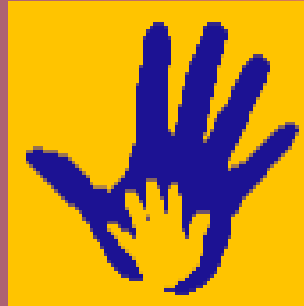


# Child Impact Statements



- "The moral test of a government is how it treats those who are at the dawn of life, the children; those who are in the twilight of life, the aged; and those who are in the shadow of life, the sick, the needy, and the handicapped." 1976

# CEHN Resources



- [www.cehn.org](http://www.cehn.org)
  - Report released on April 5
  - Listserv
  - Training manual
  - Resource guide
  - Current issues
  - Links to EPA, PEHSUs, other organizations
- We have Fellowships!
- Local/national collaborations